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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/205,115	12/03/1998	JOHN C. EIDSON	10980749	8189

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EXAMINER

HOLLOWAY III, EDWIN C

ART UNIT	PAPER NUMBER
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2635

DATE MAILED: 10/02/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/205,115

Applicant(s)

EIDSON, JOHN C.

Examiner

Edwin C. Holloway, III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 7-15-03.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 18-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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***Examiner's Response***

1. In response to applicant's amendment filed 7-15-03, all the amendments to the specification and claims have been entered. The examiner has considered the new presentation of claims and applicant's arguments in view of the disclosure and the present state of the prior art. And it is the examiner's opinion that the claims are unpatentable for the reasons set forth in this Office action:

***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 18-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura (US 5146410) and Eidson '180 (US 5566180).

Kawamura discloses a multiple axes motion control system where command values and execution time is sent to each axis control circuit or node. Pulses are sent to the circuits which are considered to provide synchronization, but clocks with synchronization time are not specified. See at least fig. 1, col. 2 and the abstract. Although axis control circuits 25-26 are grouped as group B, Kawamura comprises separate axis control circuit 24-26 where axis control circuit 24 receive execution time  $T_a$  and axis control circuits 25-26 receive execution time

Te. Axis control circuits in the same group have start command moving at the same execution times, but separately receive and store axis commands. Further the grouping of the axes and the execution times may be varied from the PMC 10.

Eidson '180 discloses an analogous art synchronized clock system with nodes including clocks synchronized by a protocol over a network for industrial process facilities monitoring and control. This assures successful operation of for systems such as process control which depends on accurately knowing times for applying control signals at known times. See at least cols. 1-5.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included in Kawamura the axis circuits or nodes including clocks synchronized by a protocol over a network disclosed in Eidson '180 to assure successful operation of for systems such as process control which depends on accurately knowing times for applying control signals at known times and suggested by Kawamura disclosing machine control and with execution times suggestive of process facilities with clock synchronization in Eidson '180.

4. Claims 18-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura (US 5146410) and Eidson (US 5566180)

as applied above in view of Evans (US 4514814).

Evans discloses an analogous art axis control system with independently controlled axes. Coordinated motion of several axes is attained by programmable grouping axis into motion groups to provide a desired motion. See the abstract and col. 1. If independent control is not clear from the combination applied above then it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included independent control as disclosed in Evans for providing desired motion as suggested by col. 2 lines 42-46 of Kawamura disclosing that the grouping may be varied according to commands from the PMC.

***Response to Arguments***

5. Applicant's arguments filed 7-15-03 have been fully considered but they are not persuasive. The argument that Kawamura discloses a control apparatus 20 rather than control nodes each for controlling motion along a single axis is not persuasive because axis control circuits 24-26 of Kawamura each form a circuit or node for controlling motion in a single axis. See col. 2 lines 26-28. The single device 20 of Kawamura correspond to a single device 10 with three actuators in applicant's disclosure. Although axis control circuits 25-26 are grouped as group B, this does not represent the wasteful

grouping of applicant's col. pages 3-4 because each circuit or node 26-28 in Kawamura each control motion along a single axis of motion. The argument that Eidson does not disclose control nodes each for controlling motion along a single axis is not persuasive because axis control circuits 24-26 of Kawamura each form a circuit or node for controlling motion in a single axis. See col. 2 lines 26-28. The argument that Evans discloses plural axis control computers on a single board is not persuasive because each axis computer or processor may be considered a separate node since the grouping is programmable allowing separate control of the axes in the abstract.

The argument that Kawamura, Eidson and Evans do not disclose or suggest coordinating the application of control values to axes of motion control system using trigger times and synchronized clocks is not persuasive because Kawamura includes execution time corresponding to trigger times and Edison discloses synchronized clocks for providing accurate time in industrial process facilities (col. 1) corresponding to the numerical control system of Kawamura. The argument the movement of Kawamura is triggered by grouping information is incorrect. Movement is triggered by the execution time in Kawamura. Kawamura comprises control circuit 24 in group A programmed with execution time  $T_a$  separate from control circuits 25-26 in group

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B programmed with execution time  $T_e$ . Axis control circuits in the same group have start command moving at the same execution times, yet they each separately receive and store axis commands. In addition, Kawamura discloses that the grouping can be changed according to commands from the PMC 10 in col. 2 lines 42-43 and Evans discloses separately controlled axis with programmable grouping for coordinated motion such as forming a circle. This apparent argument against group trigger times is not persuasive in view of applicant's disclosure of coordination to form a circle, for example, relying on the same execution time  $t_0$  for each axis in page 8 line 30 and corresponds to the linear interpolation of Kawamura and the circle example of Evans. The argument that applicant's invention specifies an appropriate motion control function for each axis in contrast to the command values of Kawamura fed directly in groups is not persuasive. Kawamura does not state that the command values are fed in groups. Further, Evans is applied to clearly disclose independent control.

The argument that Kawamura, Eidson, and Evans do not teach or suggest combination with each other is not persuasive because Kawamura discloses a numerical control machine with motion controlled by execution times corresponding to clocked control rather than asynchronous control in col. 1 line 35. Eidson

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discloses an analogous art process facilities control with nodes having synchronized clocks for applying controls at known accurate times in col. 1. The rejection is based on a combination with Eidson that includes a network, and Evans also includes a network in the form of a bus. The argument that Eidson lacks coordination by trigger times is not persuasive because Eidson discloses event triggering in col. 7 lines 10-23 and coordinated event triggering is provided by Kawamura and/or Evans. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Regarding claim 23, the rejection of claim 23 is proper for the same reasons applied above. The argument that the applied art lacks a selector node and tables is not persuasive because the PMC in Kawamura is a selector node and the plural command values in col. 2 line 24 at least suggest a table.



Regarding claim 27, the argument hat the applied art lacks trigger times is not persuasive for the same reasons applied above.

Regarding claim 35, the argument hat the applied art lacks trigger times is not persuasive for the same reasons applied above. Further, the argument that the prior art lacks grouped trigger times is not persuasive because Kawamura includes a group B trigger time  $T_e$  in col. 2 lines 25-37. The inclusion of grouping in claim 35 contradicts the arguments against claims 18-24 complaining that the exact same grouping in Kawamura is wasteful.

#### **Conclusion**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fugere (US 5463292), Hagiwara (US 5287010) and Eidson (US 6173207 and 2002/0186716) disclose axis or actuator control nodes with clock/timer.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action

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is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


**CONTACT INFORMATION**

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology center 2600 receptionist whose telephone number is (703) 305-4700.

Facsimile submissions may be sent via fax number (703) 872-9314 to customer service for entry by technical support staff. Questions regarding fax submissions should be directed to customer service voice line (703) 306-0377.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edwin C. Holloway, III whose telephone number is (703) 305-4818. The examiner can normally be reached on M-F (8:30:-5:00). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Horabik can be reached on (703) 305-4704.

EH  
9/25/03

  
EDWIN C. HOLLOWAY, III  
PRIMARY EXAMINER  
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